REMARKS

Applicant respectfully requests reconsideration of the present application in view of the foregoing amendments and in view of the reasons that follow.

Claim 19 has been canceled.

This amendment adds, changes and/or deletes claims in this application. A detailed listing of all claims that are, or were, in the application, irrespective of whether the claim(s) remain under examination in the application, is presented, with an appropriate defined status identifier.

After amending the claims as set forth above, claims 4-18, 20, and 21 are now pending in this application. Claims 4-12 have been withdrawn from consideration.

Rejections under 35 U.S.C. § 103

Claims 13, 18, 20, and 21 are rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over U.S. Patent No. 5,676,913 to Cirillo *et al.* (hereafter "Cirillo") in view of U.S. Patent No. 5,538,697 to Abe *et al.* (hereafter "Abe"), U.S. Pub. No. 2002/0016252 to Takahashi *et al.* (hereafter "Takahashi"), U.S. Pub. No. 5,142,864 to Dunne (hereafter "Dunne"), U.S. Patent No. 5,497,619 to Yamada *et al.* (hereafter "Yamada"), and Heck *et al.*, *The application of monoliths for gas phase catalytic reactions*, Chemical Engineering Journal 2001; 82: 149-156 (hereafter "Heck"). This rejection is respectfully traversed.

Applicant notes that the methods of claims 13 and 20 advantageously provide an ozone decomposing substance that includes an ozone decomposing substance that decomposes ozone to generate active oxygen (radical O) which has a life time of the order of 10^{-6} to 10^{-7} seconds, which is extremely short. The following formulas are to be considered in this situation:

$$CO + (O) \rightarrow CO_2$$

$$O_3 \rightarrow O_2 + (O)$$

$$(O) + (O) \rightarrow O_2$$

To utilize the oxygen with carbon monoxide, it is advantageous to densely capture the carbon monoxide in an effective reaction distance to the active oxygen so that a reaction takes place within the effective life of the active oxygen. Thus, the active oxygen must react with

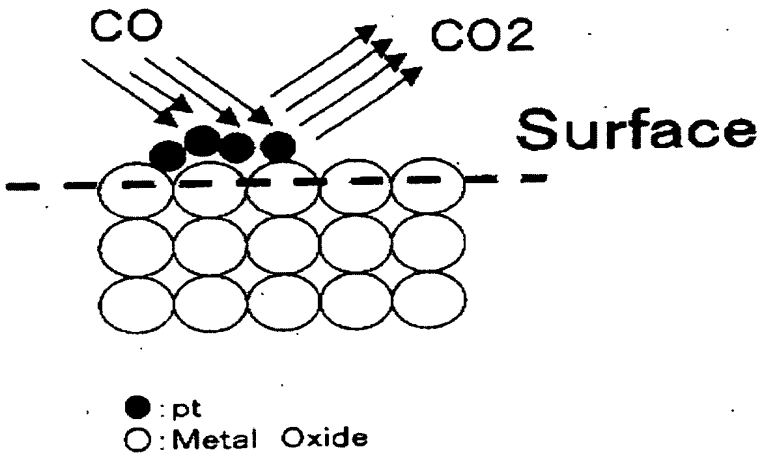
the carbon monoxide during a time from the generation of the active oxygen to annihilation of the active oxygen so that the carbon monoxide may be oxidized. Because of this, it is necessary to densely capture carbon monoxide molecules in the extreme vicinity of the active oxygen generating area via ozone decomposition. As shown in the example of Figure 3 of the application, an oxidizing apparatus 10 can include a CO adsorbing area D that adsorbs carbon monoxide and is carried on an ozone decomposer 24 in an ozone decomposing area C so that the oxidation of carbon monoxide via active oxygen can take place within the vicinity where active oxygen is generated and within the short effective life of the active oxygen. In addition, by providing fine particles of platinum based precious metals each having a particle size of 10Å to 1000 Å, it is possible to provide a CO adsorbing member with a large adsorbing area.

On page 2 of the Office Action, referencing the argument on pages 4-5 of the Office Action of June 10, 2008, the Office argues that Cirillo discloses in col. 4, lines 11-33, a bed containing a mixture of catalysts, such as MnO_2 and platinum.

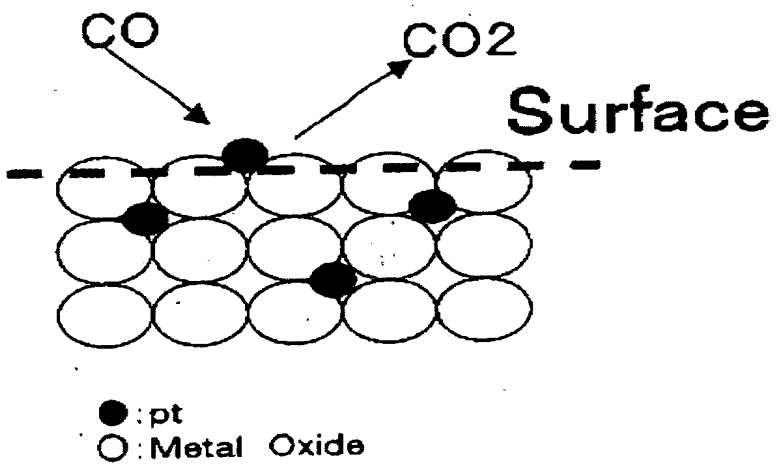
However, the mixture of catalysts disclosed by Cirillo does not provide a CO adsorbing member composed of fine particles of at least one platinum based precious metal, the fine particles being carried on an ozone decomposing member, as recited in claims 13 and 20.

Nor does the mixture of catalysts disclosed by Cirillo provide the same advantageous effects provided by the methods of claims 13 and 20. Applicant notes when discussing results a claimed invention may be compared with the closest subject matter that exists in the art but not the combination of references relied upon in a rejection. See MPEP § 716.02(e), Part III. Applicant respectfully submits that Cirillo is the closest reference for purposes of comparing results.

The following diagram provides an example of a platinum CO adsorbing member carried on a metal oxide ozone decomposing member:

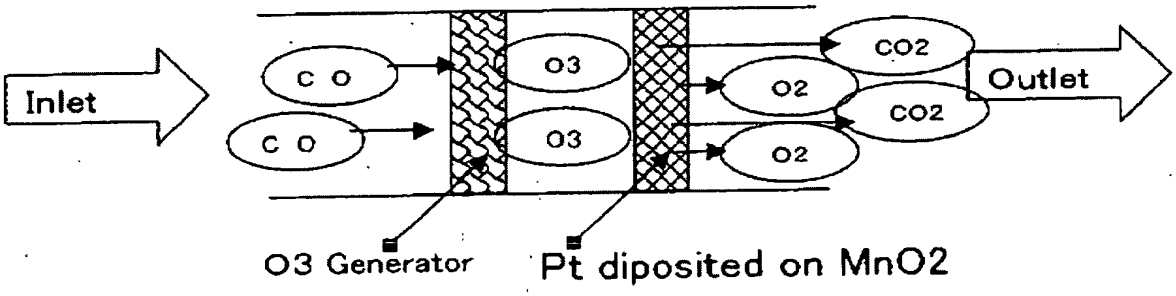


Such an arrangement advantageously provides a CO adsorbing area on the surface of the ozone decomposing member. Conversely the catalytic mixture disclosed by Cirillo has the following structure:

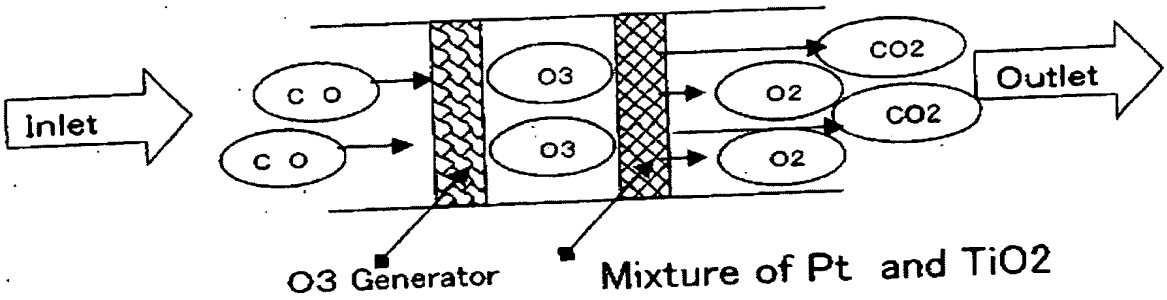


Such a structure disadvantageously buries a least a portion of the CO adsorbing member within the metal oxide, limiting the effectiveness of the catalytic mixture, as will be discussed below. Thus, the platinum particles of Cirillo are not carried on an ozone decomposing member, as recited in claims 13 and 20. Abe, Takahashi, Dunne, Yamada, and Heck fail to remedy the deficiencies of Cirillo.

Tests were performed on the following structures, which respectively represent an example of the methods of claims 13 and 20 and the structure of Cirillo. The following first structure included an ozone generating device that generated 30 ppm of ozone, an ozone decomposing member and CO adsorbing member, which included platinum having a particle size of 10Å to 1000 Å. CO in an amount of about 20 ppm was flowed into the structure and CO_2 was measured at the exit to determine the effectiveness of the structure in oxidizing CO:



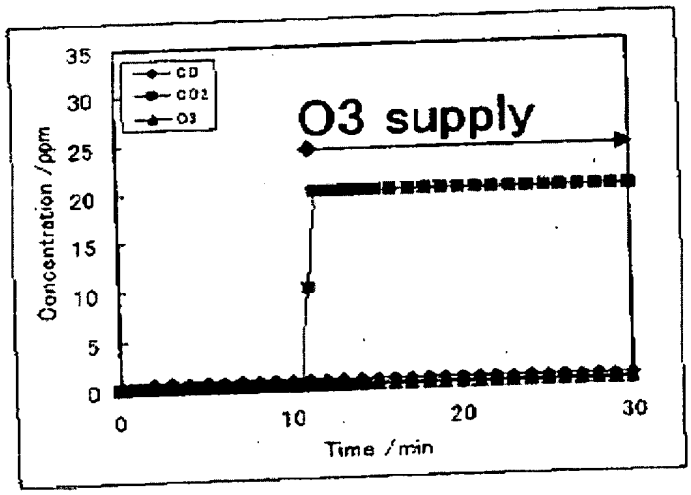
The following second structure was tested to determine the effectiveness of the catalytic mixture disclosed by Cirillo:



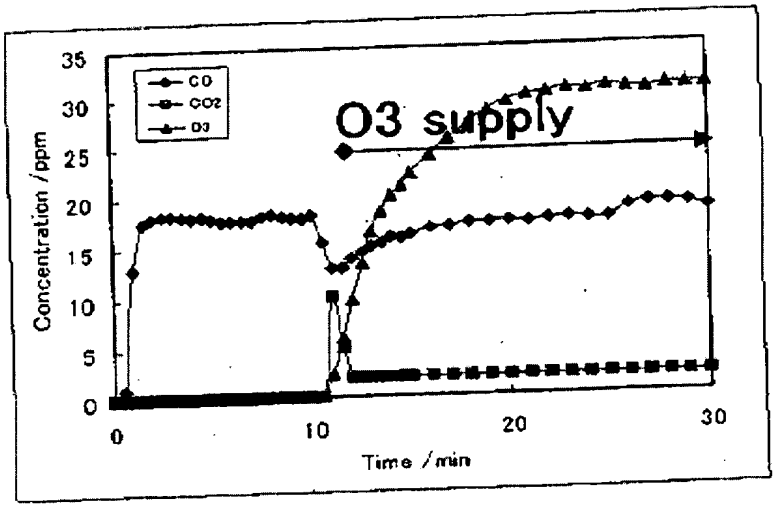
The catalytic mixture used in the structure above contained platinum and an oxide of titanium of first transition period. The platinum used was the same as that in the first structure above. The ozone generator also generated 30 ppm of ozone, 20 ppm of CO was flowed into the structure, and CO_2 was measured at the exit to determine the effectiveness of the structure in oxidizing CO.

The following graph provides the results for the first structure, which corresponds to the methods of claims 13 and 20. As shown in the graph, during an initial period prior to supplying ozone there was a negligible measurement of CO, presumbably due to adsorption of the CO. Subsequently during the supply of ozone, CO was not measured at the exit of the

structure and the amount of CO_2 measured increased substantially, suggesting that CO was being effectively oxidized by the device.



The following graph provides the results for the second structure, which corresponds to the device of Cirillo. As shown in the graph, after a short initial period, prior to supplying ozone, CO was measured at the exit of the structure in nearly the same amount provided at the inlet to the device. Subsequently, when supplying ozone, CO was measured in a substantial amount at the exit of the structure and a relatively low amount of CO_2 was measured at the exit of the structure. These results suggest that the catalytic mixture was ineffective in adsorbing CO and oxidizing the CO to provide CO_2.



For at least the reasons discussed above, the combination of Cirillo, Abe, Takahashi, Dunne, Yamada, and Heck does not disclose or suggest all of the features of claims 13 and 20. Furthermore, the methods of claims 13 and 20 advantageously provide improved results in comparison the teachings of Cirillo. Applicant submits that these improved results weigh in favor of nonobviousness of claims 13 and 20. Reconsideration and withdrawal of this rejection is respectfully requested.

Claims 13-15, 18, 20, and 21 are also rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over U.S. Patent No. 5,221,520 to Cornwell (hereafter "Cornwell") in view of Abe, Takahashi, Dunne, Yamada, and Heck. This rejection is also respectfully traversed.

On pages 2-3 of the Office Action, referencing the argument on pages 8-9 of the Office Action of June 10, 2008, the Office argues that Cornwell discloses a method of oxidizing carbon monoxide using manganese oxide and platinum. In particular, the Office argues on page 9 of the Office Action of June 10, 2008 that Cornwell discloses the use of platinum because Cornwell's treatment with chloroplanitic acid would be expected to deposit platinum. Applicant respectfully disagrees.

Cornwell discloses the deposition of a catalytic wash coat that includes hopcalite, not platinum, as discussed in col. 10, lines 26-46, of Cornwell (emphasis added):

> There are a number of formulations and processes that may be used to provide sufficient catalytic support requirements. The preferred approach is to first coat the polyester non-woven substrate with an alumina wash coat in an aqueous salt solution. Then, using a slurry of finely ground hopcalite (5-20 microns), mixed with the cobalt (II & III) oxide, and an appropriate binder, a thick layer is deposited on the media. After the wash coat is applied to the substrate, the catalytic coated substrate is dipped in a dilute solution of ethyl alcohol and water containing 5% by weight chloroplantic acid. The substrate is then removed and dried in air at 150-200 degrees Fahrenheit, and then heated in a 300-350 degrees Fahrenheit oven for at least 5-7 minutes. Preferably, the carrier temperature should not exceed 300 degrees Fahrenheit. The process of depositing the modified hopcalite is repeated until a level of 30% by weight of wash coat has been reach. It should be noted that the copper manganese, or hopcalite, wash coating deposition process can be substituted by either a spraying operation or a dip-coating operation.

A person skilled in the art would not expect the dipping treatment with the dilute solution of alcohol, water, and 5 wt% chloroplanitic acid to deposit a substantial amount of platinum. Such a dipping treatment is disclosed by Cornwell as an intermediate preparatory treatment of the substrate, not as a step to deposit platinum. Cornwell does not disclose or suggest that the dipping treatment would deposit any substantial amount of platinum, nor does the Office provide any evidence or technical reasoning to support its argument that the dipping treatment of Cornwell would otherwise do so. Abe, Takahashi, Dunne, Yamada, and Heck fail to remedy the deficiencies of Cornwell.

For at least the reasons discussed above, the combination of Cornwell, Abe, Takahashi, Dunne, Yamada, and Heck does not disclose or suggest all of the features of claims 13 and 20. Reconsideration and withdrawal of this rejection is respectfully requested.

Claims 14-16 are rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Cirillo, Abe, Takahashi, Dunne, Yamada, and Heck, and further in view of U.S. Patent No. 3,745,751 to Zey *et al.* (hereafter "Zey"). This rejection is respectfully traversed. Zey fails to remedy the deficiencies of Cirillo, Abe, Takahashi, Dunne, Yamada, and Heck discussed above in regard to independent claim 13, from which claims 14-16 depend. Reconsideration and withdrawal of this rejection is respectfully requested.

Claim 17 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Cirillo, Abe, Takahashi, Dunne, Yamada, and Heck, as applied to claim 14, and further in view of U.S. Patent No. 6,042,637 to Weinberg (hereafter "Weinberg"). This rejection is respectfully traversed. Weinberg fails to remedy the deficiencies of Cirillo, Abe, Takahashi, Dunne, Yamada, and Heck discussed above in regard to independent claim 13, from which claim 17 depends. Reconsideration and withdrawal of this rejection is respectfully requested.

Claim 19 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Cirillo, Abe, Takahashi, Dunne, Yamada, and Heck, as applied to claim 14, and further in view of U.S. Patent No. 4,661,468 to Lee *et al.* (hereafter "Lee"). Claim 19 has been canceled. Reconsideration and withdrawal of this rejection is respectfully requested.

Claim 16 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Cornwell, Abe, Takahashi, Dunne, Yamada, and Heck, as applied to claim 13, and further in view of Cirillo. This rejection is respectfully traversed. Cirillo fails to remedy the deficiencies of Cornwell, Abe, Takahashi, Dunne, Yamada, and Heck discussed above in regard to independent claim 13, from which claim 16 depends. Reconsideration and withdrawal of this rejection is respectfully requested.

Claim 17 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Cornwell, Abe, Takahashi, Dunne, Yamada, and Heck, as applied to claim 14, and further in view of Weinberg. This rejection is respectfully traversed. Weinberg fails to remedy the deficiencies of Cornwell, Abe, Takahashi, Dunne, Yamada, and Heck discussed above in regard to independent claim 13, from which claim 17 depends. Reconsideration and withdrawal of this rejection is respectfully requested.

Claim 19 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Cornwell, Abe, Takahashi, Dunne, Yamada, and Heck, as applied to claim 13, and further in view of Lee. This rejection is respectfully traversed. Claim 19 has been canceled. Reconsideration and withdrawal of this rejection is respectfully requested.

CONCLUSION

Applicant submits that the present application is now in condition for allowance. Favorable reconsideration of the application as amended is respectfully requested.

The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by a check being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing or a credit card payment form being unsigned, providing incorrect information resulting in a rejected credit card transaction, or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741. If any extensions of time are needed for timely acceptance of papers submitted herewith,

Applicant hereby petitions for such extension under 37 C.F.R. §1.136 and authorizes payment of any such extensions fees to Deposit Account No. 19-0741.

Respectfully submitted,

Date 3/6/09 By _____

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